## Division 3. Air Resources Board

## Chapter 2. Enforcement of Vehicle Emission Standards and Surveillance Testing

## Article 2.1. Procedures for In – Use Vehicle Voluntary and Influenced Recalls

### § 2112. Definitions.

(a) "Capture rate" means the percentage of in-use vehicles subject to recall which must be corrected to bring the class or category of vehicles into compliance. The number of vehicles subject to recall shall be based on the actual number of vehicles in use as verified by the Department of Motor Vehicles registration records, or vehicle or engine registration records compiled and prepared by R. L. Polk and Company or a comparable source at the time a recall is initiated.

(b) "Correlation factor" means a pollutant-specific multiplicative factor calculated by a manufacturer for an engine family or test group which establishes a relationship between chassis exhaust emission data, as determined from the test procedures specified in section 1960.1 or 1961, Title 13, California Code of Regulations, and engine exhaust emission data, as determined from the test procedures specified in section 1956.8, Title 13, California Code of Regulations.

(c) "Days", when computing any period of time, means normal working days on which a manufacturer is open for business, unless otherwise noted.

(d) "Emission-Related Failure" means a failure of a device, system, or assembly described in the approved application for certification which affects any parameter, specification, or component enumerated in Appendix A to this subchapter 2.5 or listed in the Emission Warranty Parts List pursuant to section 2036, Title 13, California Code of Regulations, except for failures of devices, systems and assemblies which the Executive Officer has deleted from the manufacturer's list of warranted parts pursuant to section 2036 (f), Title 13, California Code of Regulations.

(e) "Emission Warranty Claim" means an adjustment, inspection, repair or replacement of a specific emission-related component for which the vehicle or engine manufacturer is invoiced or solicited by a repairing agent for compensation pursuant to warranty provisions, regardless of whether compensation is actually provided.

(f) "Executive Officer" means the Executive Officer of the Air Resources Board or his or her authorized representative.

(g) "Influenced Emission Recall" means an inspection, repair, adjustment, or modification program initiated and conducted by a manufacturer or its agent or representative as a result of in-use enforcement testing or other evidence of noncompliance provided or required by the Board, to remedy any nonconformity for which direct notification of vehicle or engine owners is necessary.

(h) "Nonconformity" or "noncompliance" exists whenever:

(1) a substantial number of a class or category of vehicles or engines, although properly maintained and used, experience a failure of the same emission-related component within their useful lives which, if uncorrected, results in the vehicles' or engines' failure to meet the applicable standards; or

(2) a class or category of vehicles or engines within their useful lives, although properly maintained and used, on average does not comply with the emission standards prescribed under section 43101 of the Health and Safety Code which are applicable to the model-year of such vehicles or engines.

(i) "Ordered Emission Recall" means an inspection, repair, adjustment, or modification program required by the Board and conducted by the manufacturer or its agent or representative to remedy any nonconformity for which direct notification of vehicle or engine owners is necessary.

(j) "Quarterly reports" refer to the following calendar periods: January 1-March 31, April 1-June 30, July 1-September 30, October 1-December 31.

(k) "Ultimate purchaser" has the same meaning as defined in section 39055.5 of the Health and Safety Code.

(l) "Useful life" means, for the purposes of this article:

(1) For Class I motorcycles and motorcycle engines (50 to 169 cc or 3.1 to 10.4 cu. in.), a period of use of five years or 12,000 kilometers (7,456 miles), whichever first occurs.

(2) For Class II motorcycles and motorcycle engines (170 to 279 cc or 10.4 to 17.1 cu. in.), a period of use of five years or 18,000 kilometers (11,185 miles), whichever first occurs.

(3) For Class III motorcycles and motorcycle engines (280 cc and larger or 17.1 cu. in. and larger), a period of use of five years or 30,000 kilometers (18,641 miles), whichever first occurs.

(4) For 1982 through 1984 model-year diesel heavy-duty vehicles (except medium-duty vehicles), and 1982 through 1984 model-year motor vehicle engines used in such vehicles, a period of use of five years, 100,000 miles, or 3000 hours of operation, whichever first occurs.

(5) For 1982 through 1987 model-year gasoline heavy-duty vehicles (except medium-duty vehicles) certified using the steady-state emission standards and test procedures, and 1982 through 1987 model-year gasoline heavy-duty motor vehicle engines certified using the steady-state emission standards and test procedures, a period of use of five years or 50,000 miles, whichever first occurs.

(6) For 1987 through 2003 model-year gasoline heavy-duty vehicles (except medium-duty vehicles) certified to the transient emission standards and test procedures, and 1987 and subsequent model-year gasoline heavy-duty motor vehicle engines certified using the transient emission standards and test procedures, a period of use of eight years or 110,000 miles, whichever first occurs, except as noted in paragraph (13).

(7) For 1985 through 2003 model-year heavy-duty diesel urban buses, and 1985 through 2003 model-year heavy-duty diesel engines to be used in urban buses, and for 1985 through 2003 model-year diesel heavy-duty vehicles (except medium-duty vehicles), and 1985 through 2003 model-year motor vehicle engines used in such vehicles, a period of use of eight years or 110,000 miles, whichever first occurs, for diesel light, heavy-duty vehicles; eight years or 185,000 miles, whichever first occurs, for diesel medium, heavy-duty vehicles; and eight years or 290,000 miles, whichever first occurs, for diesel heavy, heavy-duty vehicles, except as provided in paragraphs (11), (14), (15) and (16); or any alternative useful life period approved by the Executive Officer. (The classes of diesel light, medium, and heavy, heavy-duty vehicles are defined in 40 CFR section 86.085-2, as amended November 16, 1983.)

(8) For light-duty and medium-duty vehicles certified under the Optional 100,000 Mile Certification Procedure, and motor vehicle engines used in such vehicles, a period of use of ten years or 100,000 miles, whichever first occurs.

(9) For 2001 and subsequent-model year medium-duty low-emission, ultra-low-emission and super-ultra-low-emission vehicles certified to the primary standards in section 1961(a)(1), and motor vehicle engines used in such vehicles, a period of use of ten years or 120,000 miles, whichever occurs first. For 2001 and subsequent medium-duty low-emission, ultra-low-emission and super-ultra-low-emission vehicles certified to the optional 150,000 mile standards in section 1961(a)(1), and motor vehicle engines used in such vehicles, a period of use of fifteen years or 150,000 miles, whichever occurs first. For all other 1995 and subsequent model-year medium-duty vehicles and motor vehicle engines used in such vehicles, and 1992 through 1994 model-year medium-duty low-emission and ultra-low-emission vehicles certified to the standards in Section 1960.1(h)(2), and motor vehicle engines used in such vehicles, a period of use of eleven years or 120,000 miles, whichever occurs first.

(10) For all other light-duty and medium-duty vehicles, and motor vehicle engines used in such vehicles, a period of use of five years or 50,000 miles, whichever first occurs. For those passenger cars, light-duty trucks and medium-duty vehicles certified pursuant to section 1960.1.5, Title 13, California Code of Regulations, the useful life shall be seven years, or 75,000 miles, whichever first occurs; however, the manufacturer's reporting and recall responsibility beyond 5 years or 50,000 miles shall be limited, as provided in section 1960.1.5. For those passenger cars and light-duty trucks certified pursuant to Title 13, California Code of Regulations, section 1960.1 (f) and section 1960.1(g), the useful life shall be ten years or 100,000 miles, whichever first occurs; however, for those vehicles certified under section 1960.1(f), the manufacturer's warranty failure and defects reporting and recall responsibility shall be subject to the conditions and standards specified in section 1960.1 (f).

(11) For 1994 through 2003 model-year heavy heavy-duty diesel urban buses, and 1994 through 2003 model-year heavy heavy-duty diesel engines to be used in urban buses, for the particulate standard, a period of use of ten years or 290,000 miles, whichever first occurs; or any alternative useful life period approved by the Executive Officer.

(12) For 1997 and subsequent model year off-road motorcycles, all-terrain vehicles, and engines used in such vehicles, a period of use of five years or 10,000 kilometers (6,250 miles), whichever first occurs.

(13) For 1998 through 2003 model-year gasoline heavy-duty engines, for the NOx standard, a period of use of ten years or 110,000 miles, whichever first occurs; or any alternative useful life period approved by the Executive Officer.

(14) For 1998 through 2003 model-year light heavy-duty diesel engines, for the NOx standard, a period of use of ten years or 110,000 miles, whichever first occurs; or any alternative useful life period approved by the Executive Officer. (15) For 1998 through 2003 model-year medium heavy-duty diesel engines, for the NOx standard, a period

of use of ten years or 185,000 miles, whichever first occurs; or any alternative useful life period approved by the Executive Officer.

(16) For 1998 through 2003 model-year heavy heavy-duty diesel engines, for the NOx standard, a period of use of ten years or 290,000 miles, whichever first occurs; or any alternative useful life period approved by the Executive Officer.

(17) For those passenger cars and light-duty trucks certified to the primary standards in section 1961(a)(1), the useful life shall be ten years or 120,000 miles, whichever occurs first. For 2001 and subsequent passenger car and light-duty truck low-emission, ultra-low-emission and super-ultra-low-emission vehicles certified to the optional 150,000 mile standards in section 1961(a)(1), and motor vehicle engines used in such vehicles, a period of use of fifteen years or 150,000 miles, whichever occurs first.

(18) For 2004 and subsequent model-year light heavy-duty diesel engines, for carbon monoxide, particulate, and oxides of nitrogen plus non-methane hydrocarbons emissions standards, a period of use of 10 years or 110,000 miles, whichever first occurs, or any alternative useful life period approved by the Executive Officer.

(19) For 2004 and subsequent model-year medium heavy-duty diesel engines, for carbon monoxide, particulate, and oxides of nitrogen plus non-methane hydrocarbons emissions standards, a period of use of ten years or 185,000 miles, whichever first occurs; or any alternative useful life period approved by the Executive Officer.

(20) For 2004 and subsequent model-year heavy heavy-duty diesel engines, for carbon monoxide, particulate, and oxides of nitrogen plus non-methane hydrocarbon emissions standards, a period of use of 10 years or 435,000 miles, or 22,000 hours, whichever first occurs, or any alternative useful life period approved by the Executive Officer, except as provided in paragraphs (20)(i) and (20)(ii).

(i) The useful life limit of 22,000 hours in paragraph (20) of this definition is effective as a limit to the useful life only when an accurate hours meter is provided by the manufacturer with the engine and only when such hours meter can reasonably be expected to operate properly over the useful life of the engine.

(ii) For an individual engine, if the useful life hours limit of 22,000 hours is reached before the engine reaches 10 years or 100,000 miles, the useful life shall become 10 years or 100,000 miles, whichever occurs first, as required under Clean Air Act section 202(d) (42 U.S.C. 7521(d)).

(21) For 2004 and subsequent model-year heavy-duty Otto-cycle engines, for carbon monoxide, particulate, and oxides of nitrogen plus non-methane hydrocarbon emissions standards, a period of use of 10 years or 110,000 miles, whichever first occurs.

(22) For 2000 and later model year off-road compression-ignition engines, for oxides of nitrogen, hydrocarbon, oxides of nitrogen plus hydrocarbon (when applicable), carbon monoxide, particulate emission standards, and for smoke opacity:

(A) For all engines rated under 19 kilowatts, and for constant-speed engines rated under 37 kilowatts with rated speeds greater than or equal to 3,000 revolutions per minute, a period of use of five years or 3,000 hours of operation, whichever first occurs.

(B) For all other engines rated above 19 kilowatts and under 37 kilowatts, a period of use of seven years or 5,000 hours of operation, whichever first occurs.

(C) For engines rated at or above 37 kilowatts, a period of use of ten years or 8,000 hours of operation, whichever first occurs.

(m) “Vehicle or engine manufacturer” means the manufacturer granted certification for a motor vehicle or motor vehicle engine.

(n) “Voluntary Emission Recall” means an inspection, repair, adjustment, or modification program voluntarily initiated and conducted by a manufacturer or its agent or representative to remedy any nonconformity for which direct notification of vehicle or engine owners is necessary.

**Appendix A**
**to Article 2.1**

California In-Use Vehicle Emission-Related Recall Procedures, Enforcement Test Procedures, and Failure Reporting Procedures for 1982 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, Heavy-Duty Vehicles and Engines, Motorcycles, 1997 and Subsequent Model-Year Off-Road Motorcycles and All-Terrain Vehicles, and 2000 and Subsequent Model-Year Off-Road Compression-Ignition Engines.

## Division 3. Air Resources Board

## Chapter 2. Enforcement of Vehicle Emission Standards and Surveillance Testing

### Article 2.1. Procedures for In – Use Vehicle Voluntary and Influenced Recalls

**Vehicle and Engine Parameters, Components, and Specifications**

I. Passenger Car, Light-Duty Truck, Medium-Duty Vehicle and Motorcycle Parameters and Specifications

A. Basic Engine Parameters--Reciprocating Engines.

1. Compression ratio.
2. Cranking compression pressure.
3. Valves (intake and exhaust).
    a. Head diameter dimension.
    b. Valve lifter or actuator type and valve lash dimension.
4. Turbocharger calibrations.
5. Camshaft timing.
    a. Valve opening (degrees BTDC).
    b. Valve closing (degrees ATDC).
    c. Valve overlap (inch-degrees).

B. Basic Engine Parameters--Rotary Engines.

1. Intake port(s): Timing and overlap if exposed to the combustion chamber.
2. Exhaust port(s): Timing and overlap if exposed to the combustion chamber.
3. Cranking compression pressure.
4. Compression ratio.

C. Air Inlet System: Temperature control system calibration.

D. Fuel System.

1. General
    a. Engine idle speed.
    b. Engine idle mixture.
2. Carburetion.
    a. Air-fuel flow calibration.
    b. Transient enrichment system calibration.
    c. Starting enrichment system calibration.
    d. Altitude compensation system calibration.
    e. Hot idle compensation system calibration.
3. Fuel injection.
    a. Control parameters and calibrations.
    b. Fuel shutoff system calibration.
    c. Starting enrichment system calibration.
    d. Transient enrichment system calibration.
    e. Air-fuel flow calibration.
    f. Altitude compensation system calibration.
    g. Operating pressure(s).
    h. Injector timing calibrations.

E. Ignition System.

1. Control parameters and calibrations.
2. Initial timing setting.
3. Dwell setting.
4. Altitude compensation system calibration.
5. Spark plug voltage.

F. Engine Cooling System: Thermostat calibration.

456G. Exhaust Emission Control system.

1. Air injection system.
    a. Control parameters and calibrations.
    b. EGR valve flow calibration.
2. EGR system.
    a. Control parameters and calibrations.

b. EGR valve flow calibration.
3. Catalytic converter system.
a. Active surface area.
b. Volume of catalyst.
c. Conversion efficiency.
d. Leaded fuel restrictor or constricted fuel filler neck.
4. Backpressure.
H. Evaporative Emission Control System.
1. Control parameters and calibrations.
2. Fuel tank.
a. Pressure and vacuum relief settings.
b. Fuel fill pipe and opening specifications (Reference section 2290, Title 13, C.C.R.).
I. Crankcase Emission Control System.
1. Control parameters and calibrations.
2. Valve calibration(s).
J. Auxiliary Emission Control Devices (AECD).
1. Control parameters and calibrations.
2. Component calibration(s).
K. Emission Control Related Malfunction and Diagnostic Systems.
1. On-Board Malfunction and Diagnostic Systems
a. Control parameters and calibrations.
b. Component calibration(s).
2. Emission Control Related Warning Systems a. Control parameters and calibrations.
b. Component calibration(s).
L. Driveline Parameters.
1. Axle ratio(s).
II. Heavy-Duty Gasoline Engine Parameters and Specifications.
A. Basic Engine Parameters.
1. Compression ratio.
2. Cranking compression pressure.
3. Supercharger/turbocharger calibration.
4. Valves (intake and exhaust).
a. Head diameter dimension.
b. Valve lifter or actuator type and valve lash dimension.
5. Camshaft timing.
a. Valve opening (degrees BTDC).
b. Valve closing (degrees ATDC).
c. Valve overlap (inch-degrees).
B. Air Inlet System: Temperature control system calibration.
C. Fuel System.
1. General.
a. Engine idle speed.
b. Engine idle mixture.
2. Carburetion.
a. Air-fuel flow calibration.
b. Transient enrichment system calibration.
c. Starting enrichment system calibration.
d. Altitude compensation system calibration.
e. Hot idle compensation system calibration.
3. Fuel injection.
a. Control parameters and calibrations.

b. Fuel shutoff system calibration.
c. Starting enrichment system calibration.
d. Transient enrichment system calibration.
e. Air-fuel flow calibration.
f. Altitude compensation system calibration.
g. Operating pressure(s).
h. Injector timing calibrations.

D. Ignition System.
1. Control parameters and calibrations.
2. Initial timing setting.
3. Dwell setting.
4. Altitude compensation system calibration.
5. Spark plug voltage.

E. Engine Cooling System: Thermostat calibration.

F. Exhaust Emission Control system.
1. Air injection system.
a. Control parameters and calibrations.
b. Pump flow rate.
2. EGR system.
a. Control parameters and calibrations.
b. EGR valve flow calibration.
3. Catalytic converter system.
a. Active surface area.
b. Volume of catalyst.
c. Conversion efficiency.
d. Leaded fuel restrictor or constricted fuel filler neck.
4. Backpressure.

G. Evaporative Emission Control System.
1. Control parameters and calibrations.
2. Fuel tank.
a. Pressure and vacuum relief settings.
b. Fuel fill pipe and opening specifications (Reference section 2290, Title 13, C.C.R.).

H. Crankcase Emission Control System.
1. Control parameters and calibrations.
2. Valve calibration(s).

I. Auxiliary Emission Control Devices (AECD).
1. Control parameters and calibrations.
2. Component calibration(s).

J. Emission Control Related Warning Systems.
1. Control parameters and calibrations.
2. Component calibration(s).

III. Heavy-Duty Diesel Engine and Off-Road Compression-Ignition Engine Parameters and Specifications.

A. Basic Engine Parameters--Four Stroke Cycle Reciprocating Engines.
1. Compression ratio.
2. Cranking compression pressure.
3. Supercharger/turbocharger calibration.
4. Valves (intake and exhaust).
a. Head diameter dimension.
b. Valve lifter or actuator type and valve lash dimension.
5. Camshaft timing.

a. Valve opening (degrees BTDC).
b. Valve closing (degrees ATDC).
c. Valve overlap (inch-degrees).

B. Basic Engine Parameters--Two Stoke Cycle Reciprocating Engine.
1-5. Same as section III.A.
6. Intake port(s): Timing in combustion cycle.
7. Exhaust port(s): Timing in combustion cycle.

C. Air Inlet System: Temperature control system calibration.
1. Temperature control system calibration.
2. Maximum allowable air inlet restriction.

D. Fuel System.
1. Fuel injection.
a. Control parameters and calibrations.
b. Transient enrichment system calibration.
c. Air-fuel flow calibration.
d. Altitude compensation system calibration.
e. Operating pressure(s).
f. Injector timing calibration.

E. Exhaust Emission Control System: Maximum allowable backpressure.

F. Crankcase Emission Control System.
1. Control parameters and calibrations.
2. Valve calibration(s).

G. Auxiliary Emission Control Device (AECD).
1. Control parameters and calibrations.
2. Component calibration(s).

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code Reference: Sections 39002, 39003, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107 and 43204-43205.5, Health and Safety Code.

REFERENCE